

## Claims

[c1] What is claimed is:

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H1

1. An optical disk drive module installed in a flat panel display personal computer for lifting up and lowering a disk drive, the flat panel display personal computer comprising a flat panel display, the optical disk drive module comprising:

a chassis module disposed at a rear side of the flat panel display; and

a drive carrier rotatably disposed in the chassis module for positioning the disk drive;

wherein when the drive carrier swings away from the chassis module, the optical disk drive module will lower the disk drive to expose the disk drive below the flat panel display; and when the drive carrier moves toward the chassis module, the optical disk drive module will lift up the disk drive to position the disk drive at the rear side of the flat panel display.

[c2]

2. The optical disk drive module of claim 1 wherein:

the chassis module comprises:

a chassis body;

a first side plate and a second side plate formed at two sides of the chassis body and movably fastened to the rear side of the flat panel display, the first side plate having a first aperture, the second side plate having a second aperture facing the first aperture;

a first gearwheel disposed on an inner wall of the first side plate; and

a second gearwheel disposed on an inner wall of the second side plate facing the first gear, the first and second gearwheels having effectively equal radii  $D1$ ;

and

the drive carrier comprises:

a carrier body;

a first side plate and a second side plate formed at two sides of the carrier body, the first side plate having a first protruded portion inserted into the first aperture of the first side plate of the chassis module, the second side plate having a second protruded portion inserted into the second aperture of the second side plate of the chassis module;

a first positioning hook positioned at an upper end of the first side plate, and a second positioning hook positioned at an upper end of the second side plate;  
a first gear disposed at one end of the first side plate for engaging with the first gearwheel; and  
a second gear disposed at one end of the second side plate opposing the first gear for engaging with the second gearwheel, the first and second gears having effectively equal radii  $D_2$  which is larger than  $D_1$ ;  
wherein when the drive carrier rotates with respect to the first protruded and the second protruded portion to swing away from the chassis module, the optical disk drive module will lower the disk drive to expose the disk drive below the flat panel display; and when the drive carrier rotates with respect to the first protruded portion and the second protruded portion to swing toward the chassis module, the optical disk drive module will raise up the disk drive to position the disk drive at the rear side of the flat panel display.

[c3]

3.The optical disk drive module of claim 2 further comprising a cover slidably fastened within the drive carrier, the cover comprising:  
a cover body having a first positioning slot for receiving the first positioning hook, and a second positioning slot for receiving the second positioning hook so as to fasten the cover within the drive carrier; and  
a first side plate and a second side plate formed at two sides of the cover and outside of the disk drive so as to fix the cover outside of the disk drive, the first side plate and the second side plate being slidably disposed within the drive carrier so as to dispose the disk drive within the drive carrier.

[c4]

4.An optical disk drive module installed in a flat panel display personal computer for lifting up and lowering a disk drive, the flat panel display personal computer comprising a flat panel display, the optical disk drive module comprising:  
a chassis module disposed at a rear side of the flat panel display;  
a drive carrier rotatably disposed in the chassis module; and  
a cover fixed outside of the disk drive and slidably fastened within the drive carrier so as to position the disk drive in the drive carrier;  
wherein when the drive carrier swings away from the chassis module, the optical

disk drive module will lower the disk drive to expose the disk drive below the flat panel display; and when the drive carrier moves toward the chassis module, the optical disk drive module will lift up the disk drive to position the disk drive at the rear side of the flat panel display.

[c5]

5. The optical disk drive module of claim 4 wherein:

the chassis module comprises:

a chassis body;

a first side plate and a second side plate formed at two sides of the chassis body and movably fastened to the rear side of the flat panel display, the first side plate having a first aperture, the second side plate having a second aperture facing the first aperture;

a first gearwheel disposed on an inner wall of the first side plate; and

a second gearwheel disposed on an inner wall of the second side plate facing the first gearwheel, the first and second gearwheels having effectively equal radii  $D1$ ;

the drive carrier comprises:

a carrier body;

a first side plate and a second side plate formed at two sides of the carrier body, the first side plate having a first protruded portion inserted into the first aperture of the first side plate of the chassis module, the second side plate having a second protruded portion inserted into the second aperture of the second side plate of the chassis module;

a first positioning hook positioned at an upper end of the first side plate, and a second positioning hook positioned at an upper end of the second side plate;

a first gear disposed at one end of the first side plate for engaging with the first gearwheel; and

a second gear disposed at one end of the second side plate opposing the first gear for engaging with the second gearwheel, the first and second gears having effectively equal radii  $D2$  which is larger than  $D1$ ; and

the cover comprises:

a cover body having a first positioning slot for receiving the first positioning hook, and a second positioning slot for receiving the second positioning hook

so as to fasten the cover within the drive carrier; and  
a first side plate and a second side plate formed at two sides of the cover and  
outside of the disk drive so as to fix the cover outside of the disk drive, the first  
side plate and the second side plate being slidably disposed within the drive  
carrier so as to dispose the disk drive within the drive carrier;  
wherein when the drive carrier rotates with respect to the first protruded  
and the second protruded portion to swing away from the chassis module, the  
optical disk drive module will lower the disk drive to expose the disk drive  
below the flat panel display; and when the drive carrier rotates with respect to  
the first protruded portion and the second protruded portion to swing toward  
the chassis module, the optical disk drive module will raise up the disk drive to  
position the disk drive at the rear side of the flat panel display.

[c6]

6.A flat panel display personal computer comprising:

a flat panel display;  
a computing module disposed on a rear side of the flat panel display and  
coupled to the flat panel display; and  
an optical disk drive module disposed at the rear side of the flat panel display  
for lifting up and lowering a disk drive, the optical disk drive module  
comprising:  
a chassis module disposed at the rear side of the flat panel display; and  
a drive carrier rotatably disposed in the chassis module for positioning the disk  
drive;  
wherein when the drive carrier swings away from the chassis module, the optical  
disk drive module will lower the disk drive to expose the disk drive below the  
flat panel display; and when the drive carrier moves toward the chassis module,  
the optical disk drive module will lift up the disk drive to position the disk drive  
at the rear side of the flat panel display.

[c7]

7.The flat panel display personal computer of claim 1 wherein:

the chassis module comprises:  
a chassis body;  
a first side plate and a second side plate formed at two sides of the chassis  
body and movably fastened to the rear side of the flat panel display, the first

side plate having a first aperture, the second side plate having a second aperture facing the first aperture;  
a first gearwheel disposed on an inner wall of the first side plate; and  
a second gearwheel disposed on an inner wall of the second side plate facing the first gearwheel, the first and second gearwheels having effectively equal radii  $D1$ ; and  
the drive carrier comprises:  
a carrier body;  
a first side plate and a second side plate formed at two sides of the carrier body, the first side plate having a first protruded portion inserted into the first aperture of the first side plate of the chassis module, the second side plate having a second protruded portion inserted into the second aperture of the second side plate of the chassis module;  
a first positioning hook positioned at an upper end of the first side plate, and a second positioning hook positioned at an upper end of the second side plate;  
a first gear disposed at one end of the first side plate for engaging with the first gearwheel; and  
a second gear disposed at one end of the second side plate opposing the first gear for engaging with the second gearwheel, the first and second gears having effectively equal radii  $D2$  which is larger than  $D1$ ;  
wherein when the drive carrier rotates with respect to the first protruded and the second protruded portion to swing away from the chassis module, the optical disk drive module will lower the disk drive to expose the disk drive below the flat panel display; and when the drive carrier rotates with respect to the first protruded portion and the second protruded portion to swing toward the chassis module, the optical disk drive module will raise up the disk drive to position the disk drive at the rear side of the flat panel display.

[c8]

8. The flat panel display personal computer of claim 7 further comprising a slidably fastened within the drive carrier, the cover comprising:  
a cover body having a first positioning slot for receiving the first positioning hook, and a second positioning slot for receiving the second positioning hook so as to fasten the cover within the drive carrier; and

Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	